TECHNICAL MANUAL

RX8CH
8-Channel radio receiver with relay outputs
090020879

$C\epsilon$

EL.MO.®SPA

FOREWORD

FOR INSTALLERS:

Please follow specifications on electric and security systems realization carefully, along with manufacturer's prescriptions indicated in the manuals provided.

Provide the user with the necessary indications for use and system's limitations, specifying that there are precise specifications and different safety performances levels that should be proportioned to users needs.

Have the user view warnings indicated in this document.

FOR USERS:

Check system functionality regularly and carefully making sure all enabling and disabling operations were made correctly.

Have skilled personnel make the periodic system's maintenance in compliance with current regulations.

Contact the installer to verify correct system operation in case its conditions have changed (e.g.: variations in the areas to protect due to extension, change of the access modes, etc…)

This device has been projected, assembled and tested with the maximum care, adopting control procedures in accordance with the laws in force. The full correspondence to the functional characteristics is given exclusively when it is used for the purpose it was projected for, which is as follows:

8-Channel radio receiver with relay outputs

Any use other than the one mentioned above has not been forecast and therefore it is not possible to guarantee the correct functioning of the device. Similarly, any other use of this technical manual other than the one it has been compiled for - that is: to illustrate the devices technical features and operating mode - is expressly prohibited.

The manufacturing process is carefully controlled in order to prevent defaults and bad functioning. Nevertheless, an extremely low percentage of the components used is subjected to faults just as any other electronic or mechanic product. As this item is meant to protect both property and people, we invite the user to proportion the level of protection that the system offers to the actual risk (also taking into account the possibility that the system was operated in a degraded manner because of faults and the like), as well reminding that there are precise laws for the design and assemblage of the systems destined to these kind of applications.

The system's operator is hereby advised to see regularly to the periodic maintenance of the system, at least in accordance with the provisions of current legislation, as well as to carry out checks on the correct running of said system on as regular a basis as the risk involved requires, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. The user must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.

Design, installation and servicing of systems which include this product, should be made by skilled staff with the necessary knowledge to operate in safe conditions in order to prevent accidents. These systems' installation must be made in accordance with the laws in force. Some equipment's inner parts are connected to electric main and therefore electrocution may occur if servicing was made before switching off the main and emergency power. Some products incorporate rechargeable or non rechargeable batteries as emergency power supply. Their wrong connection may damage the product, properties and the operator's safety (burst and fire).

DISPOSAL INSTRUCTIONS - USERS INFORMATION

In accordance with Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), please be advised that the EEE was placed on the market after 13th August 2005 and must be disposed of separately from normal household waste.

IT08020000001624

1. GENERALS

RX8CH receiver can manage up to 8 wireless devices based on HELIOS and VILLEGGIO protocols (both remote controls and detectors); the receiver will manage devices events on dedicated relay outputs (8 alarm outputs, one anomaly output, one 24h output).

Alarm outputs can be set to NO / NC and with operating timers.

The first two alarm outputs are realised with electromechanical relays with current capacity up to 3A@24V for power use; the remaining outputs are solid state relays and can manage charges up to 100mA@24V.

RX8CH also checks wireless anomalies such as RF interferences and unknown remote controls codes, and adopts an efficient antiscramble system.

Displayed indications:
- wireless devices status,
- wireless devices memories,
- RF anomalies status and memories,
- RF level received.

2. TECHNICAL FEATURES

|	
Model:	**RX8CH**
Performance level:	EN 50131-5-3 grade 1 (Wireless devices).
Power supply:	12V ▬ (7.5 to 15V).
Power consumption:	22mA idle status,
	76mA max with all outputs enabled and LED active.
No. of devices:	8 Wireless devices.
Outputs:	8 outputs: 2 electromechanical relay outputs 3A@24V and 6 solid state relay outputs 100mA@24V;
	2 solid state relay outputs (100mA@24V) dedicated for general anomaly and general tamper.
Outputs type:	NO/NC and with timer, according to set mode (see relating paragraph).
Connection type:	terminal board wirings.
Selections:	LEDs deactivation jumper, tamper exclusion jumper, configuration jumper.
Operating buttons:	"PROG" button for setup and browsing in view mode.
Device case:	ABS plastic.
Case protection:	Tamper button against case opening (can be disabled in case of installation without cover)
LED indicators:	LEDs indicators for the 8 wireless inputs with different meanings according to operating status / receiver
	setup. LEDs indicating menu selected and received signal strength.
Setup assistance:	different LEDs switch on status and built-in buzzer.
Operating frequency:	RX8CH uses frequency for LPD devices.
RF section:	high sensitivity receiving circuit equipped with antenna with printed circuit.
Wireless range:	100 meters in open field for receiving signals generated by detectors or perimeter transmitters,
	50 meters in open field for transmission from remote controls.
Range limits:	range reductions may be due to environmental conditions.
Compatible equipment:	detectors, perimeter transmitters and remote controls 4th and 5th series of Helios and Villeggio systems.
Wireless protocol:	automatic management of Helios and Villeggio protocols.
Dimensions:	see image below.
Operating temperature	
and humidity:	-10° to +55°C certified by manufacturer, 93% R.h. Environmental class II.
Weight:	90 g.
Parts supplied:	technical manual, side mounting supports (to be mounted), 2 screws 2.9×16mm for cover closing.

EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment RX8CH is in compliance with Directive 2014/53/EU.
The full text of the EU Declaration of Conformity is available at the following Internet address: www.elmospa.com (registration is quick and easy).

Note: to comply with EN50131-1 standard, set supervision time to 30 minutes and use wireless devices, Helios/Villeggio systems accessories 4th and 5th series.

Side mounting supports positioning (optional)

Slide the supports in their holes until they click into place.
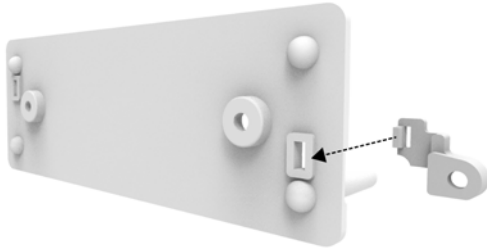
Cables passage

Remove plastic from one of points indicated (along the short sides inside the cover).

Case view
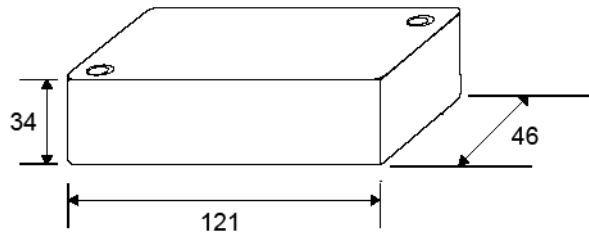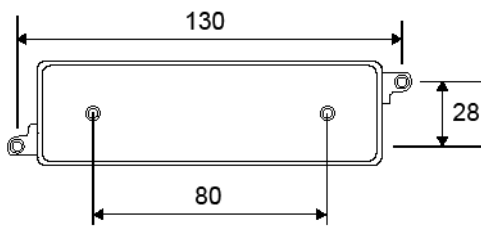
Measurements in millimetres.

3. ELECTRICAL WIRINGS

Board view.

SOLID-STATE RELAY OUTPUTS 100mA@24V OF CHANNELS 3-8 WITH PROGRAMMABLE FUNCTIONS

SETUP MENU AND RF SIGNAL STRENGTH LEDs (S-METER)

PRINTED-CIRCUIT ANTENNA DO NOT DAMAGE IT DURING INSTALLATION

C-NO PROGRAMMABLE

SETUP MENU AND CHANNELS LEDs

WIRELESS BOARD

LED ENABLE/EXCLUDE

ENABLE   EXCL.

'MODE' JUMPER   SETUP   NORM

MODE

RECEIVER POWER TERMINALS

12VDC

76mA max

C NO PROG.

C NO PROG.

EXCLUDE TAMPER   NORM   EXCL.

CASE TAMPER

BUTTON FOR SELECTIONS IN SETUP MODE

C-NO PROG. RELAY OUTPUTS 3A@24VDC

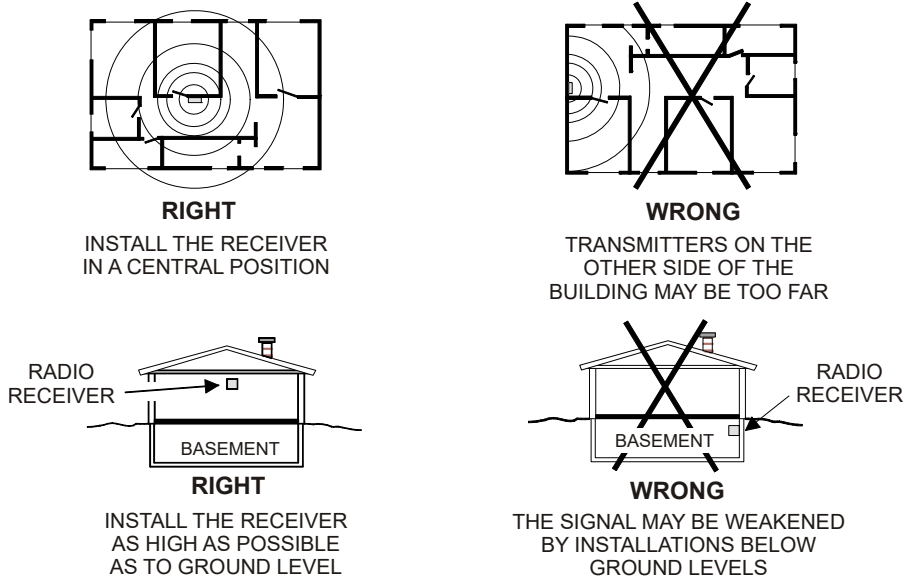SOLID-STATE RELAY OUTPUTS 100mA@24V FOR ANOMALY AND TAMPER CONDITIONS OF CHANNELS AND BOARD
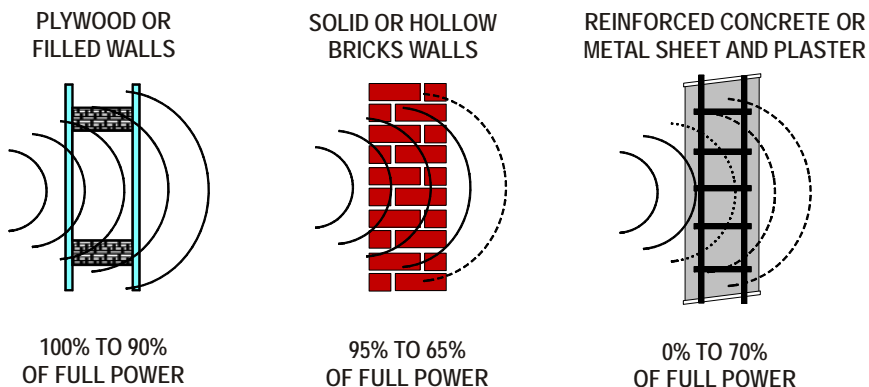
4. INSTALLATION

RX8CH receiver installation, like that of all wireless devices, shall respect specific rules to avoid poor operating performance due to positioning errors.

It is essential to define with the utmost care operating areas of receiving systems where all wireless devices will be managed correctly. Elements to be considered for the installation are: the position especially in connection with materials used for building construction and the actual coverage of detectors to be controlled. The following drawings illustrate right and wrong installation positions, objects that may interfere with RF signal strength and attenuation level of some building materials.

Installation positions recommended and to be avoided.

RIGHT
INSTALL THE RECEIVER
IN A CENTRAL POSITION

WRONG
TRANSMITTERS ON THE
OTHER SIDE OF THE
BUILDING MAY BE TOO FAR

RADIO
RECEIVER

BASEMENT

RIGHT
INSTALL THE RECEIVER
AS HIGH AS POSSIBLE
AS TO GROUND LEVEL

RADIO
RECEIVER

BASEMENT

WRONG
THE SIGNAL MAY BE WEAKENED
BY INSTALLATIONS BELOW
GROUND LEVELS

Attenuation of radio signal caused by typical building materials.

PLYWOOD OR
FILLED WALLS

SOLID OR HOLLOW
BRICKS WALLS

REINFORCED CONCRETE OR
METAL SHEET AND PLASTER

100% TO 90%
OF FULL POWER

95% TO 65%
OF FULL POWER

0% TO 70%
OF FULL POWER

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Conditions and objects that may affect operating range.

TEMPERATURE AND
SMOKE DETECTORS

TRANSMITTER WITH
TERMINAL INPUT

WIRELESS IR DETECTOR
WITH INPUTS FOR
MAGNETI CONTACTS AND
ROLL-UP SHUTTERS

PROTECTIVE METAL
AIR GRATINGS AND
REINFORCED-CONCRETE
WALLS

IR DETECTOR

CEILING-MOUNT
IR DETECTOR WITH
360° PROTECTION

WIRELESS
RECEIVER

DT DETECTOR

TRANSMITTERS FOR MAGNETIC
CONTACT, ROLL-UP SHUTTER
DETECTORS, AND IMPACT
INERTIAL DETECTORS

LARGE METAL DOORS
AND GATES

TRANSMITTER
WITH BUILT-IN
MAGNETIC CONTACT

CONTROL
KEYPAD

WIRELESS
GAS
DETECTORS

MIRRORS

Positioning at control unit side.

WIRELESS ACCESSORIES FOR HELIOS/VILLEGGIO SYSTEMS

GENERIC CONTROL PANEL

DETECTORS: SCORPIO,
LUPUS, VOLANS, LUPUSC, VOLANSC,
VIRGO, LEO, DRACO E DRACO G2,
DEIMOS, BLADERF, CONDOR

WIRELESS
GAS DETECTORS

RF

CONNECT
RECEIVER OUTPUTS /
CONTROL PANEL INPUTS
ACCORDING TO NEEDS

VELA AND VELAPLUS
KEYPADS

MEDICAL
REMOTE CONTROL

ATLANTE
REMOTE CONTROLS

VALID FOR ALL USERS: THE USE OF REMOTE CONTROL AND
WIRELESS KEYPAD IS ALTERNATIVE TO M4 KEY

FOR CONNECTIONS, USE ONLY
SHIELDED CABLE
(FOR POWER SUPPLY 2x0.75 sq mm MIN)

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Side-by-side positioning of receivers in narrow places.
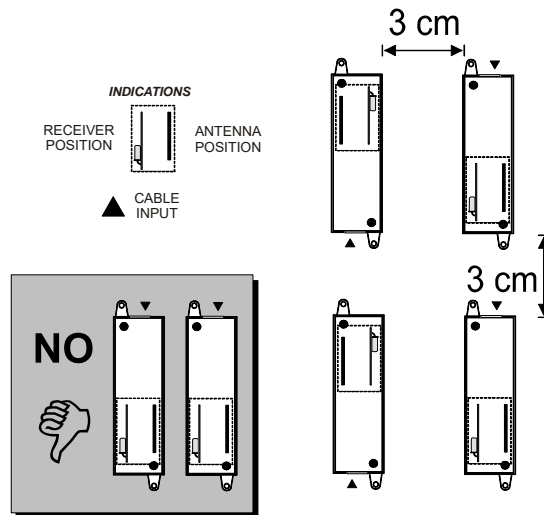
IMPORTANT: do not place receivers into metal cases.

5. FIRST POWER UP AND DEFAULT RESET

Note: to light on LED indicators close **S1** jumper. To enter setup mode close "**MODE**" **S2** jumper.

At first power up, the receiver will display firmware version on memory and the 8-LED row will light on (LEDs sequence and meaning have no relevance here).
If you keep **PROG** button pressed for long after the version display while powering up the receiver, it will reset values already set to default settings. This procedure will take around 4 seconds and at the end the built-in buzzer will beep once.

6. GRAPHIC SYMBOLS / ICONS USED

This document presents the following conventional graphic symbols and icons:

6.1 LED indications

○	LED OFF	● 👉 Short	Short pressure of PROG button
●	LED ON	● 👉 Long	Long pressure of PROG button (longer that 2 seconds)
✶	LED blinking slowly		
✹	LED blinking quickly		

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6.2 Beeps and sounds indications

BEEPS and SOUNDS	INDICATION
Double Beep	Default reset OK
Long low beep	Error
Ascending four-tone sound	Setup entered
Descending four-tone sound	Exit from setup
Short beep	Confirmation pressure PROG button
Six-tone sequence	Confirmation of action performed (ex.learning,deleting)

6.3 LED indications in receiver menu

When in receiver menu, LEDs may indicate different conditions:

A **LED ON fixed** indicates an active option or a position occupied on memory. To move to one of the 8 positions, press PROG button. The actual menu position is indicated by a **LED blinking quickly** to signal *an active option* or that data have already been memorised to that position (ex. in learning menu). A **LED blinking slowly** indicates an option deactivated or that no data have been memorised to that position.

Such behaviour is defined "Position cursor" or merely "Cursor".

Note: throughout this manual, "Cursor" will refer to such behaviour.

7. RECEIVER CONFIGURATION

7.1 Setup mode

To access setup mode, close "**MODE**" **S2** jumper. An ascending four-tone sound will indicate that you have entered setup mode and you are in detectors learning menu.

Receiver menus have a hierarchical scheme. General browsing rules are:
- when users are inside a menu, by pressing PROG button shortly the selection will go to the next menu or item;
- by pressing PROG button for more than 2 seconds, users will confirm the action/selection.

Example:
- when you close "MODE" S2 jumper, you are in main menu;
- press PROG button shortly to select a different menu signalled by setup LEDs different combinations (see table below).
- once on the menu desired, press PROG button for long until you enter the menu.

To exit setup mode, open "**MODE**" **S2** jumper.

> **Warning: if S2 jumper remains closed, the receiver will not exit setup mode and will not be operating correctly.**

7.2 Default settings, factory default

The receiver works according to parameters stored in a non-volatile memory area. Such parameters are initialized during building process and can be restored at any time following below restore procedure:

- Switch off the receiver,
- press and hold PROG button,
- switch on the receiver,
- wait for 4 seconds,
- a double beep will indicate that the receiver has been reset to factory default.

7.3 Menu structure and path

○ ○ ●	Detectors learning menu. Red LED on.	● ○ ●	NO/NC outputs. Red and green LEDs on.
○ ● ○	System options menu. Yellow LED on.	● ● ○	Timed outputs. Yellow and green LEDs on.
● ○ ○	Menu of detectors to be supervised. Green LED on.	● ● ●	Exit time. Yellow, red and green LEDs on.
○ ● ●	Supervision time. Red and yellow LEDs on.		

SETUP MODE

MODE

♪♪♪

Short ●

Learn/Canc. Detector
System Options
Detect. Supervision
Supervision Time
NO/NC Outputs
Timed Output
Outputs Time Setup

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international@elmospa.com

www.elmospa.com
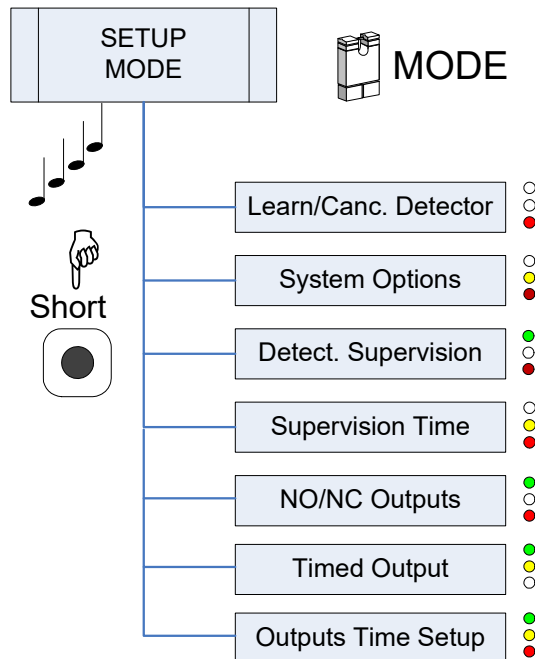
7.4 Learning / Deletion of wireless devices
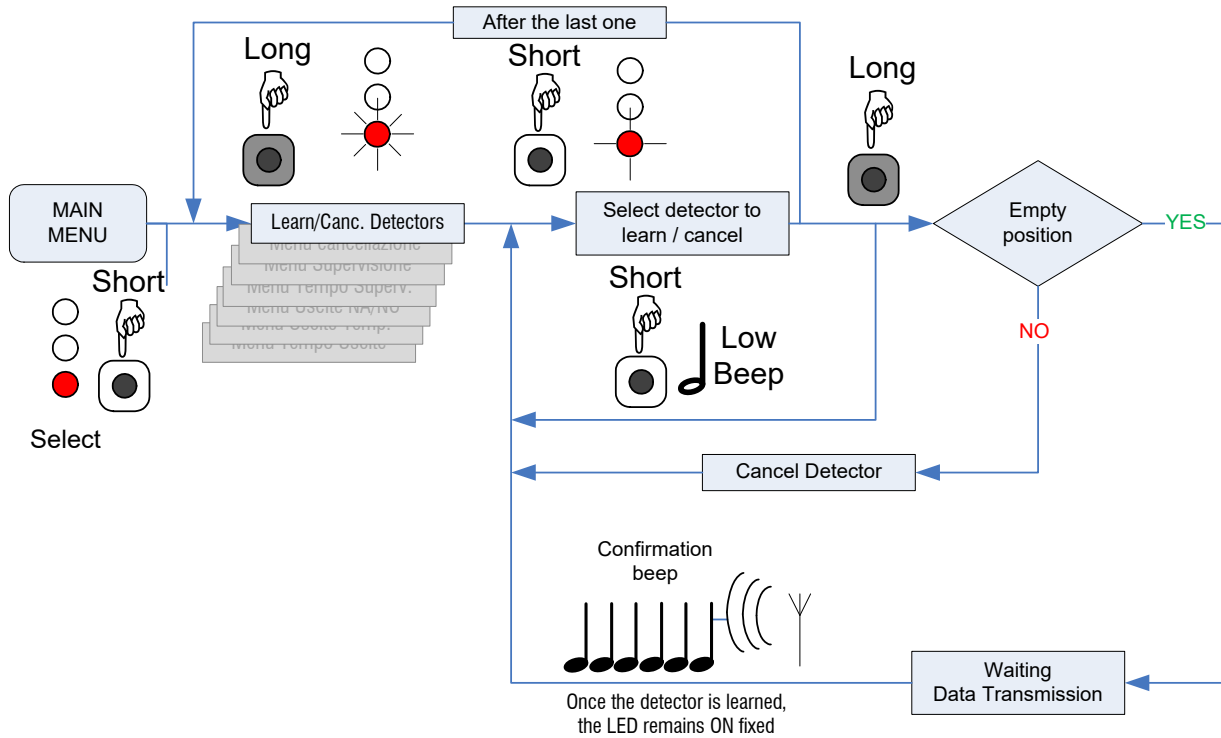
Note: when a wireless code is learned or deleted successfully, the cursor goes to the next position automatically.

7.5 System options
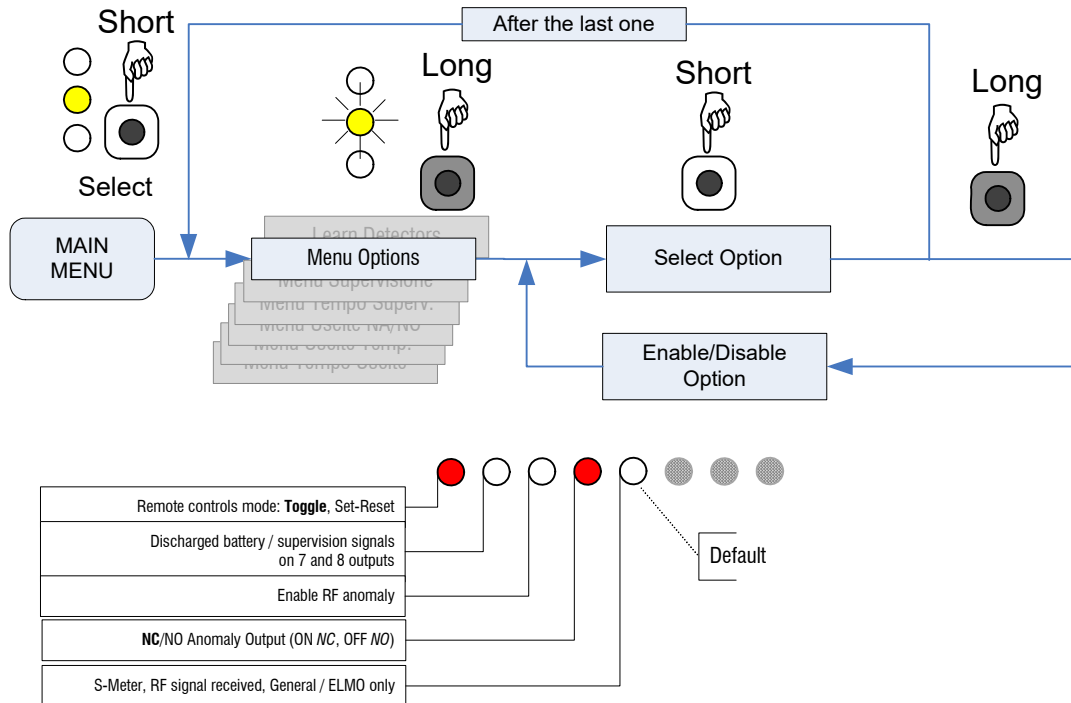
Referring to the previous diagram, the setup options are as follows (**bold** = default values):

Remote control type	⚪	Set/Reset
	🔴	**Toggle**
Discharged battery indication / supervision on outputs 7 and 8	⚪	**Outputs 7,8 for detectors**
	🔴	Outputs 7,8 for anomalies
Enable/disable RF anomaly	⚪	**RF Anomaly disabled**
	🔴	RF Anomaly enabled
Anomaly NO/NC Output	⚪	NO
	🔴	**NC**
S-Meter, received wireless signal level indication General / EL.MO. only	⚪	**General**
	🔴	EL.MO. only

7.5.1 Remote controls operating modes *Toggle - Set/Reset*

Users can select operating mode of remote controls (**valid for all learned controls simultaneously): TOGGLE** mode (Default) or **Set\Reset** mode.

TOGGLE operating mode
When you press a control button, the corresponding output changes its status: if active, it deactivates, and vice versa. If an output has been set with timer, it will follow time set in menu "Setup →Timed outputs".
TOGGLE mode is active by default.

Set/Reset operating mode
To activate **Set/Reset** mode, deselect (LED OFF) the first option in menu "Setup →System options". Such mode was implemented to simulate the remote control working mode with intrusion detection control units.

In **Set/Reset** mode, each remote control "**Set**" button has its complementary "**Reset**" button (see image on the right).
Press a button to activate the corresponding output.
If you press the button again, will not change output status (it will remain active).
To deactivate the output press the corresponding complementary button.

SET Button

RESET Button

Set	Reset
🏠	⌂
1	**2**
⬆🏠	⬆🏠

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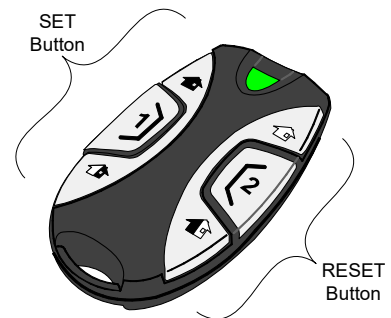
To memorise remote controls correctly, assign "**Set**" function to one button then "**Reset**" function to its complementary button.
The following example illustrates the correct memorisation procedure of remote controls according to outputs to control:

- Learn button 🏠 to position 1 and button 🏠 to next position (2): you will be able to move "Out 1" output.

- Learn button 1 to position 3 and button 2 to next position (4): you will be able to move "Out 3" output.

- Learn button 🏠 to position 5 and button 🏠 to next position (6): you will be able to move "Out 5" output.

Note: the receiver can also learn ATLANTE4PLUS remote controls but bidirectional feature will be lost, therefore such remote controls can only be used to send data but will not have RX8CH confirmation.

7.5.2 Discharged battery / supervision events on outputs 7 and 8

When this option is activated, outputs 7 and 8 will signal, respectively, discharged battery and supervision alarm events of any detector. Consequently, positions available for wireless codes memorisation will diminish from 8 to 6.
All menu working mode will be changed when this option is active. Positions 7 and 8 will no longer be available for memorisation, deletion, etc. and when you try to access such positions, you will be redirected to main menu.

Output	Indication
7	Discharged battery
8	No supervision

Note: when this option is activated, codes memorised at positions 7 and 8 will be cancelled.

7.5.3 RF detectors learning

When magnetic contacts and gas detectors are learned (ex. LUPUS, VIRGO, RFCO) the corresponding outputs will switch to "status" mode until the condition (opening or alarm) persists, and will reset when the condition ends (closing or alarm reset). When volumetric or roll-up shutters detectors are learned, (ex. SCORPIO, BLADE RF, CONDOR) the corresponding outputs will switch to "pulse" mode for per 5 seconds.
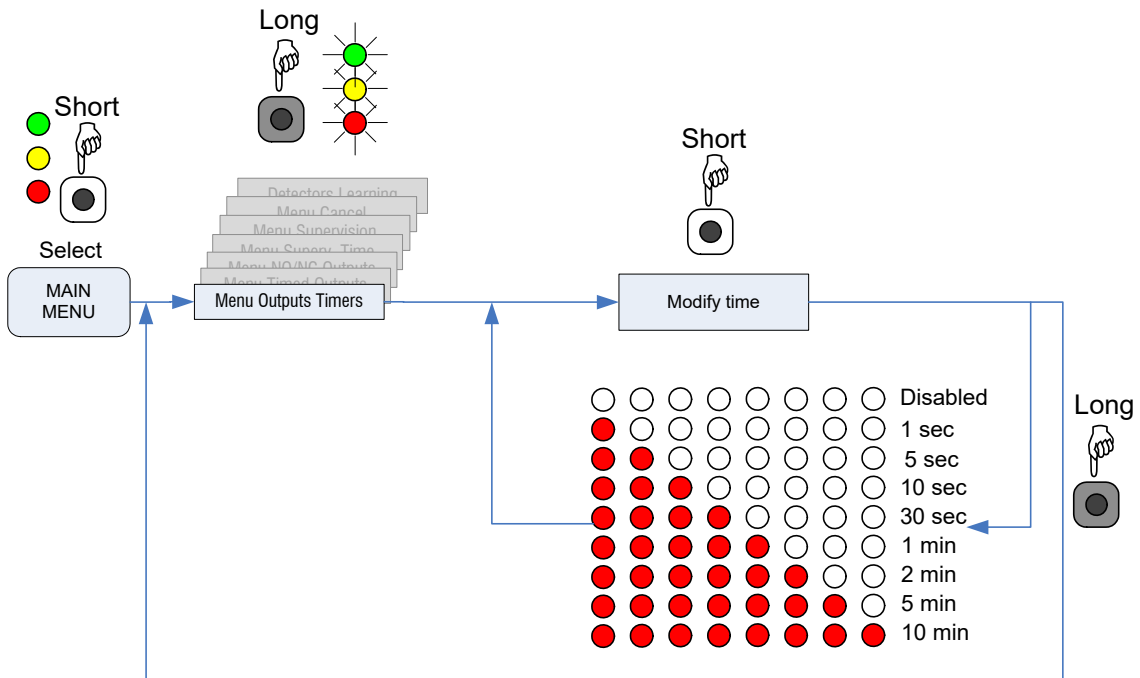
Note: magnetic contacts and gas detectors outputs are "timed outputs"; outputs connected to volumetric or roll-up shutters detectors cannot be set with timers.

7.5.4 Detectors supervision

Short — Select — MAIN MENU → Menu Supervision

Long → Select detector to modify supervision status

After the last one

Short → (Low Beep — Empty position)

Long → (Confirmation Beep — Occupied position) → Supervision / No supervision

Menu Cancel
Menu Tempo Superv.
Menu Uscite NA/NO
Menu Uscite Temp.
Menu Tempo Uscite

7.5.5 Supervision time

Short — Select — MAIN MENU → Menu Outputs Timers

Long

Short → Modify time

Long

Detectors Learning
Menu Cancel
Menu Supervision
Menu Superv. Time
Menu NO/NC Outputs
Menu Timed Outputs

Disabled
1 sec
5 sec
10 sec
30 sec
1 min
2 min
5 min
10 min

A supervision time set to zero (all LEDs off) indicates that supervision signals will be ignored.
Press **PROG** button to increase time up to the maximum permitted. When the maximum time is reached, the time will start from zero again (all LEDs off).

7.5.6 NO/NC outputs menu
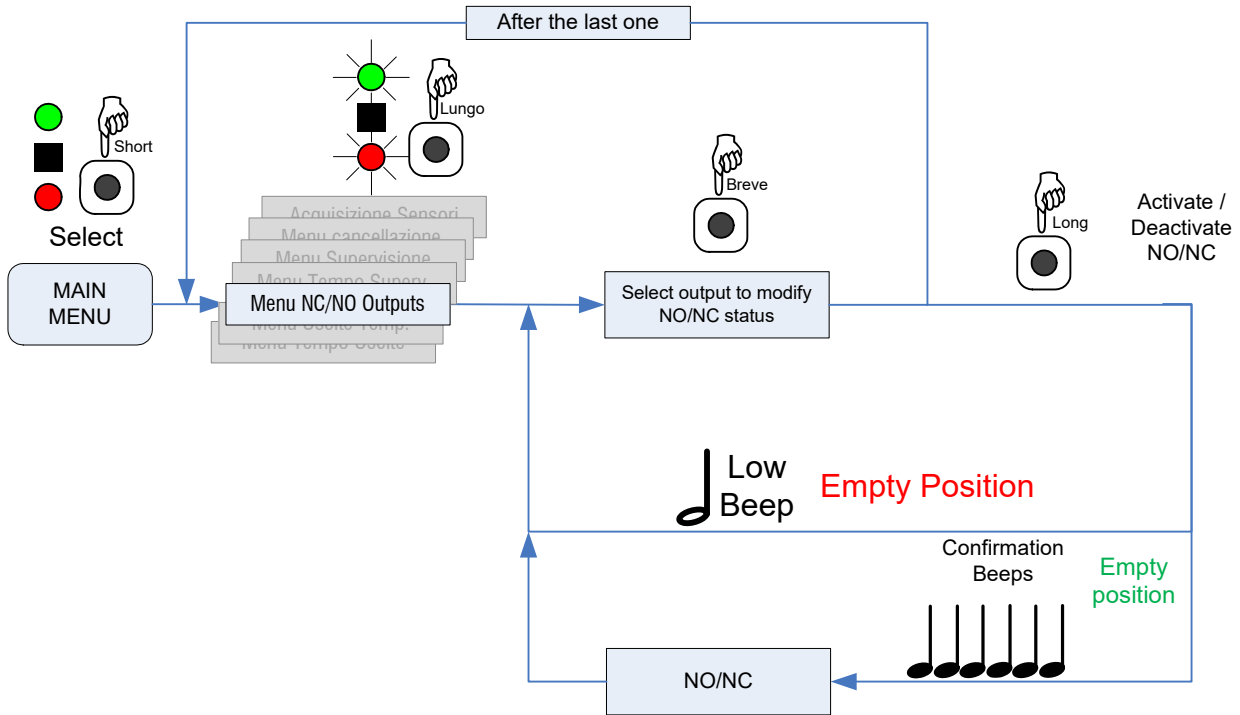
Note: all outputs are set to NO and corresponding LEDs are off by default.

7.5.7 Timed outputs setup
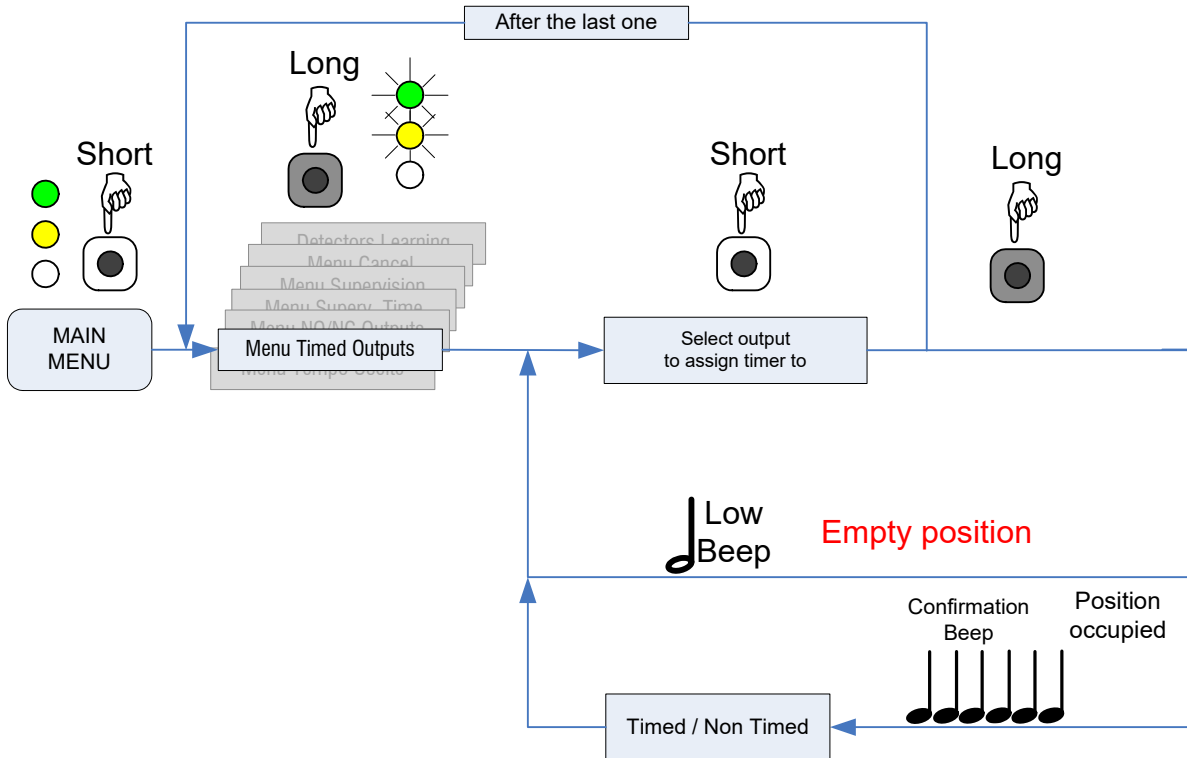
Note: by default, outputs are "status outputs" and corresponding LEDs are off.

7.5.8 Timed outputs time setup
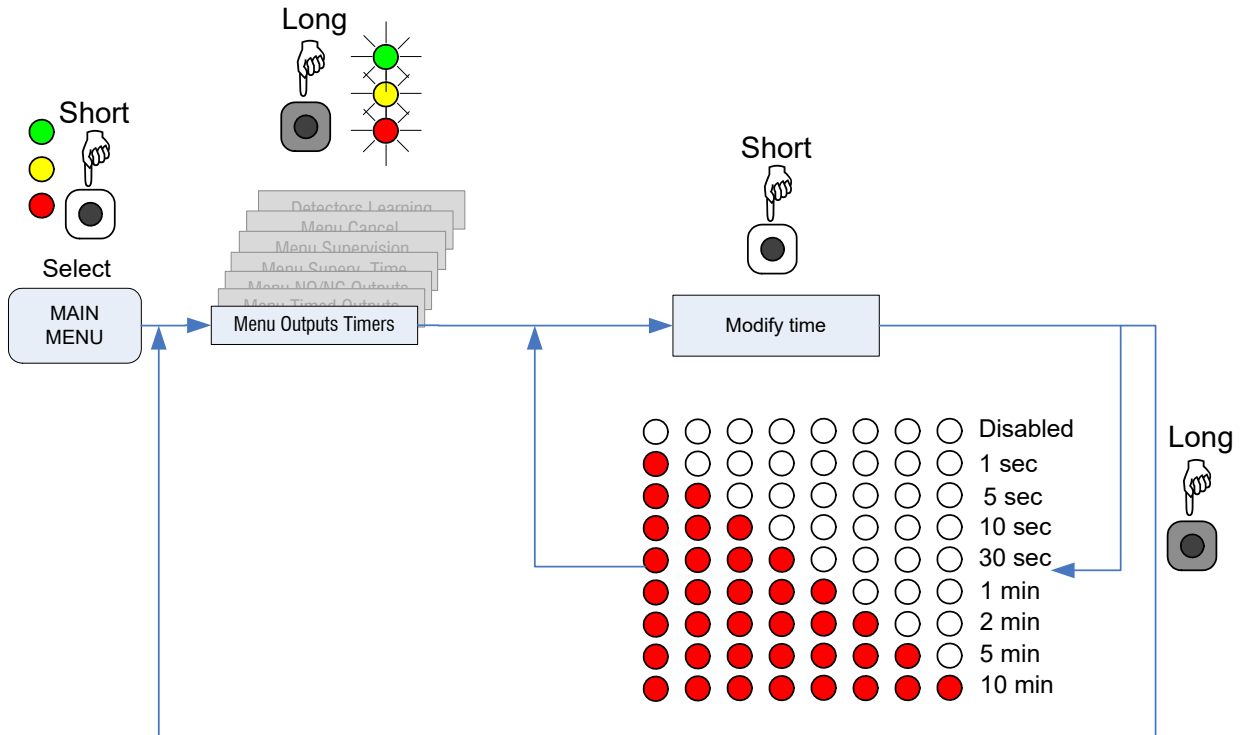
Press **PROG** button to increase time up to the maximum permitted. When the maximum time is reached, the time will start from zero again (all LEDs off).

8. OPERATING MODE

8.1 LEDs indicators

IMPORTANT: verify that "**MODE**" **S2** jumper is open so that the receiver works properly.

8.1.1 Prompts

During operating mode, LEDs can indicate condition of events triggering the activation of outputs 1-8 for Alarm, Tamper and Anomaly.

Alarms	LED fixed ON
Tamper	LED fast blinking
Anomaly	LED slow blinking
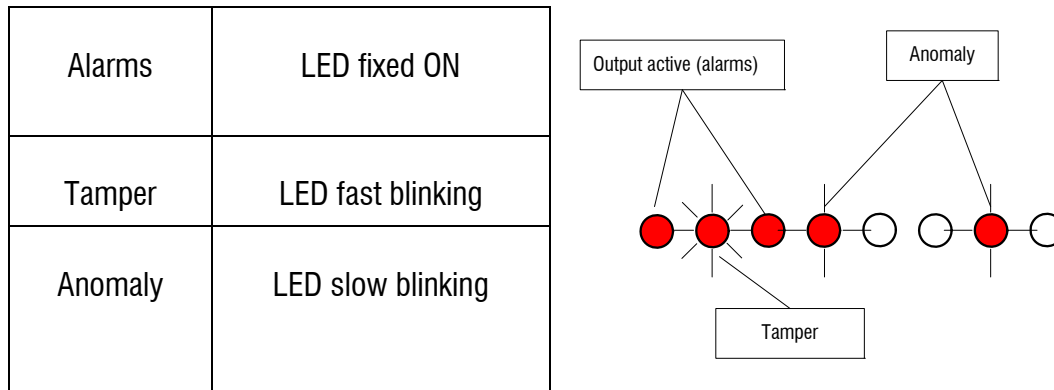
Such display mode is defined **PROMPT.**

In **PROMPT** mode, press **PROG** button to browse among the following menu pages on receiver operating status:

- Alarm events display (Status of the 8 outputs).

- Tamper events display.

- No supervision events display.

- Discharged battery events display.

- Fault events display.

- General anomaly display.

If you enter one page and do not press **PROG** button for more than 30s, menu will go back to **PROMPT** automatically.
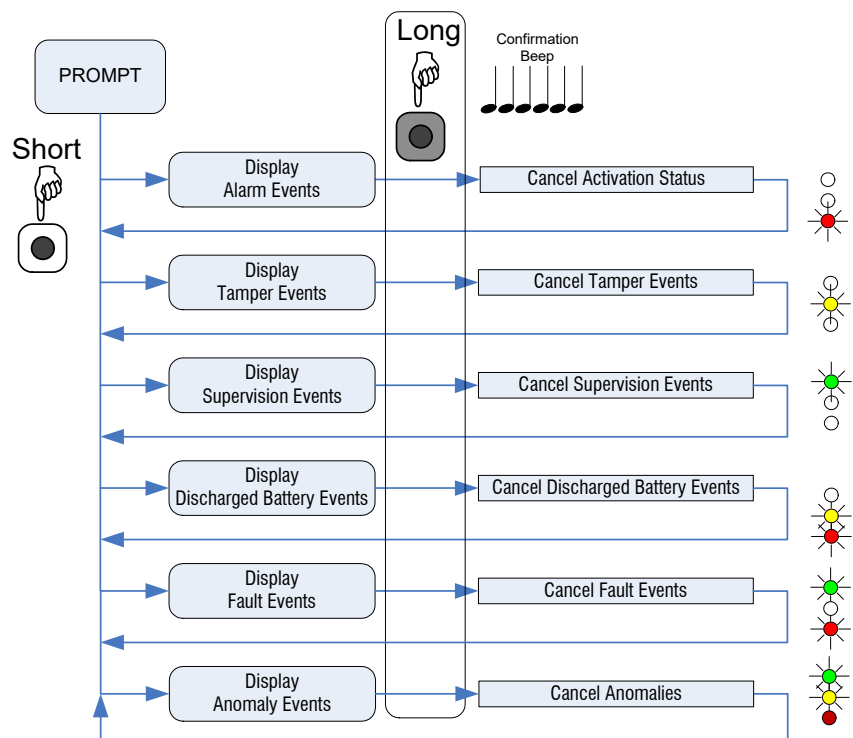
8.2 Wireless signal strength

During operating mode wireless signal strength can be displayed through three LEDs in S-Meter mode positioned next to L3-L8 outputs terminal board.
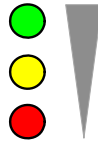
When the three LEDs are ON the signal is at maximum, if only red LED is ON it will be necessary to find a better position.

Wireless signal strength indication may refer only to EL.MO. protocol-based detectors or can be generic according to settings, see "System options" on page 10 (by Default all radio signals will be visible).

8.2.1 Status and memories

Status of events signalled by LED indicators and outputs status will reset automatically or when resetting the event. Outputs corresponding to events that will not reset automatically (example TYROS medical remote control) can only be rest manually.

All events are memorised (except alarm and remote controls switching events) and relating memories can be reset only manually with **P1** button.

Outputs and events status and memories will be memorised when the power is disconnected from the receiver except supervision memories.

8.2.2 Alarm events display

BUTTON PRESS	ACTION
Short	Go to Tamper events display
Long	No actions

8.2.3 Tamper events display

BUTTON PRESS	ACTION
Short	Go to No supervision events display
Long	Cancel tamper memories

8.2.4 No supervision events display

BUTTON PRESS	ACTION
Short	Go to Discharged battery events display
Long	Cancel no supervision memories **Note:** supervision timers will not be reset

8.2.5 Discharged battery display

BUTTON PRESS	ACTION
Short	Go to Fault events display
Long	Cancel discharged battery memories

8.2.6 Faults display

BUTTON PRESS	ACTION
Short	Go to Anomalies display
Long	Cancel fault memories

8.2.7 System anomalies display

BUTTON PRESS	ACTION
Short	Go back to **PROMPT**
Long	Cancel anomaly memories

System anomalies will be displayed here. Indication meaning will be displayed in the following image.
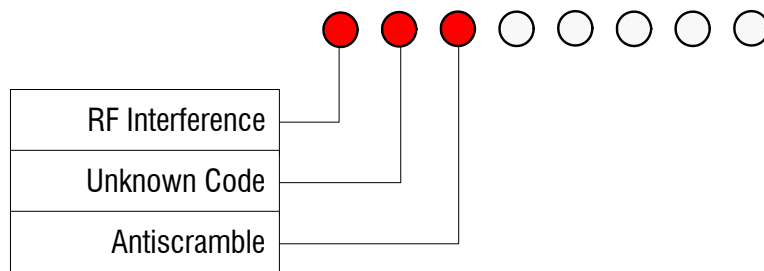
When a system anomaly occurs in **PROMPT** the yellow LED (in the three setup LEDs and RF signal LED group) will blink slowly until anomalies are cancelled manually by pressing **PROG** button for a while in "**System Anomalies**" menu.

8.3 L1 - L8 output

There is a total of **10 outputs** available of which:

- 8 outputs for 8 memorised wireless devices
- 1 output dedicated to tamper conditions,
- 1 output dedicated to anomaly conditions.

Each of the 8 outputs will activate when receiving an "**Alarm**" signal from the connected devices (see table below).

ACTION	EVENT
Alarm	Alarm
	Set by remote control
	Reset by remote control
	Gas
	Fire
	Flooding
Anomaly	Discharged battery
	No supervision
	Fault
Tamper	Tamper

According to receiver setup, the 8 outputs can be:

Normally Open (Default)	Normally Closed	Set with an adjustable timer valid for all outputs

8.4 Tamper output

This output will activate if at least one device has sent a **tamper** signal or if **antiscramble** condition occurs.
When all devices reset tamper status, this output will not be active.
Tamper output works only as NC, it cannot be set to NO mode nor can it be assigned a timer. It works also to prevent receiver case opening.

8.5 Anomalies output

This output will activate (and remain active) if at least one wireless device has signalled an anomaly status (see table).

Anomalies List
Discharged battery
No supervision
Fault
RF anomaly
Unknown code

When all devices reset anomaly status, this output will not be active.

Anomalies output works as NO and NC but it cannot be assigned a timer. Default NC.

Note: if using outputs 7 and 8 for detectors discharged battery and no supervision signals, the anomaly output will not signal such anomalies but only the remaining ones.

8.6 Panic output

One output can be set to generate panic alarms from remote controls as long as:
- toggle option is active,
- a key combination is set,
- only the key combination set is used to generate panic alarms.

To reset panic output, use the same key combination set.

8.7 Timed outputs

Outputs L1÷L8 can be set to "**Status output**" or "**Timed output**". When outputs work as "**status outputs**", their status will be the same of that of corresponding devices memorised, while when they work as "**timed outputs**" they will remain active for the time set.

8.7.1 Outputs timers

Outputs timers can be defined using the dedicate menu (see "Timed outputs time setup" on page 15). Timers consist in time-out intervals to be set and after which "timed outputs" will deactivate.

○	○	○	○	○	○	○	○	Disabled
●	○	○	○	○	○	○	○	1 sec
●	●	○	○	○	○	○	○	5 sec
●	●	●	○	○	○	○	○	10 sec
●	●	●	●	○	○	○	○	30 sec
●	●	●	●	●	○	○	○	1 min
●	●	●	●	●	●	○	○	2 min
●	●	●	●	●	●	●	○	5 min
●	●	●	●	●	●	●	●	10 min

8.7.2 "Status outputs" operating mode

TYPE	OPERATING MODE
Single detectors	Upon alarm, the output activates for 5 secs then deactivates automatically.
Double/24h detectors	Upon alarm, the output activates, then deactivates when it receives a reset.
Remote control	Each time a button is pressed, the output either activates or changes its status. *(TOOGLE mode "Remote controls operating modes Toggle - Set/Reset" on page 11)* To deactivate it, use complementary button *(SET/RESET mode "Remote controls operating modes Toggle - Set/Reset" on page 11)*.

8.7.3 "Timed outputs" operating mode

TYPE	OPERATING MODE
Single detectors	Outputs associated to SINGLE detectors cannot be assigned timers (otherwise error signals will be generated).
Double/24h detectors	Upon alarm, the output activates. When set time interval expires, the output deactivates but its status will remain active. If the output receives another alarm signal, it will NOT ACTIVATE.
Remote control	Each time a button is pressed, the output activates. When set time interval expires, the output deactivates and the status will be reset. If the output receives another alarm signal, it will ACTIVATE.

8.8 <u>System anomalies</u>

8.8.1 RF Anomalies - Antiscramble

The signalling of anomalies due to RF interference and antiscramble (unknown remote control codes) will be active simultaneously only if the specific option is selected.

In case of RF anomaly yellow LED of V-meter will blink continuously and anomaly output will be switched.

An RF anomaly occurs when a carrier lasts more than 30 seconds in 1-minute interval.

An antiscramble anomaly occurs after a certain number of transmissions from unknown remote controls:

- after 10 transmissions there will be a "unknown code" anomaly: all remote controls will be inhibited for 90 seconds and anomaly output will be activated;
- after the inhibition and the reception of further 10 unknown remote control codes there will be a "unknown code" anomaly: all remote controls will be inhibited for further 90 seconds and anomaly output will be activated;
- when the 21st unknown remote control code is received, an "antiscramble" anomaly will be signalled: anomaly output and also tamper output will be activated.

Anomalies due to RF interference will be reset after 2-minute absence of carrier; anomalies due to antiscramble will be reset when the first valid remote control code is received (outside inhibition time) or with memories manual reset.

RF Anomaly option is disabled by default (see "System options" on page 10 and relating table).

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